WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The average pressure for the month was somewhat higher than usual at land stations on the Atlantic coasts of Canada and the United States, as well as in the Bermudas and Azores. It was nearly normal on the north coast of Scotland and slightly below in the southern part of England.

From reports received the number of days with fog was apparently not far from the normal.

July is ordinarily the quietest month of the year over the North Atlantic. While during the month under discussion the number of days with winds of gale force was somewhat greater than usual off the coast of Great Britain, for the remainder of the ocean it was about normal.

From the 1st to 4th moderate weather was the rule over the ocean, except for a disturbance of limited extent in the vicinity of the British Isles, the storm area extending as far west as the 23d meridian. Storm logs follow:

American S. S. *Bremerton:*

Gale began on the 1st; wind SW. Lowest barometer 29.18 inches at 8 a. m. on the 1st; wind SW., in latitude 53° 37′ N., longitude 19° 02′ W. End on the 2d; wind NW. Highest force of wind 8, WNW.; shifts SW.–W.

Dutch S. S. *Alkmaar:*

Gale began on the 3d; wind WSW. Lowest barometer 29.72 inches at 4 a. m. on the 4th, wind W., in latitude 49° 38′ N., longitude 11° 32′ W. End on the 4th; wind W. Highest force of wind 8; shifts WSW.–SSW.–S.–WSW.–W.

American S. S. *Bremerton:*

Gale began on the 3d; wind W. Lowest barometer 29.63 inches at 8 a. m. on the 3d, wind W., in latitude 50° 47′ N., longitude 24° 15′ W. End on the 3d; wind NW. Highest force of wind 8; shift N.–NW.

On the 3d the American S. S. *Gen. W. C. Gorgas* encountered a moderate northeasterly gale in the Carribbean Sea, while other vessels in the vicinity experienced moderate weather. Report follows:

July 3, a. m., weather partly cloudy, moderate gale from northeast; heavy head sea, barometer 30 inches; p. m., similar weather. Greenwich mean noon position, latitude 14° 48′ N., longitude 75° 48′ W.

On the 5th there was a disturbance central near latitude 47° N., longitude 15° W. Storm log:

British S. S. *City of Weatherford:*

Gale began at 8 a. m. on the 5th; wind W., 6. Lowest barometer 29.34 inches at noon on the 5th, wind W., 8, in latitude 46° 09′ N., longitude 17° 49′ W. End at 10 p. m. on the 5th; wind NW. Highest force of wind 8, NW.; shifts W.–NW.

This LOW moved rapidly eastward, and during the period from the 6th to the 9th, as shown on Charts VIII to XI, inclusive, a very severe disturbance, limited in area and intermittent in character, swept the southern coast of the British Isles. Storm logs:

American S. S. *Carplaka:*

Gale began on the 6th; wind S. Lowest barometer 29.11 inches at 8 a. m. on the 6th, wind S., 8, in latitude 50° 58′ N., longitude 1° 08′ E. End on the 9th; wind NW. Highest force of wind 12; steady from S.

American S. S. *Connes Peak:*

Gale began on the 5th; wind SE. Lowest barometer 29.03 inches at midnight on the 6th, wind SW., 9, in latitude 50° 10′ N., longitude 2° 30′ W. End on the 9th; wind W. Highest force of wind 10, NNW.; shifts SE.–E.–SW.–NW.–WNW.

At the time of Greenwich mean noon observation on the 7th there seemed to be a lull in the storm, as all reports received to date indicate moderate weather. At the time of observation on the 8th, however, the wind was blowing with hurricane force, causing considerable damage not only to shipping but also on shore.

While the storm area at Greenwich mean noon on the 8th did not extend west of the 15th meridian, vessels near mid-ocean reported gales later in the day, as shown by the following storm logs:

American S. S. *Noccalula:*

Gale began on the 8th; wind SW. Lowest barometer 30.04 inches at 8 p. m. on the 8th, wind SW., in latitude 47° 16′ N., longitude 28° 47′ W. End at 11 p. m. on the 8th; wind SW. Highest force of wind 8, SW.; shifts SW.–WNW.

British S. S. *Lackawanna:*

Gale began on the 7th; wind S. Lowest barometer 29.75 inches at 8 a. m. on the 8th, wind SSW., in latitude 50° 40′ N., longitude 36° 10′ W. End on the 9th; wind NW. Highest force of wind 8; shifts SSW.–SW.–WNW., slowly.

By the 9th the force and extent of this disturbance had diminished considerably, although a moderate westerly gale still occurred in the vicinity of the English Channel.

The intensity of this storm was so great that the French liner *Lafayette* was obliged to return to port on the morning of the 9th, after encountering such violent weather in the English Channel that the ship was flooded, the damage being so heavy that extensive repairs will be necessary. Storm logs follow:

American S. S. *President Polk:*

Gale began on the 8th; wind S. Lowest barometer 29.40 inches at 1 a. m. on the 8th, wind S., 5, in latitude 50° 01′ N., longitude 5° 10′ W. End on the 9th; wind NW. Highest force of wind 9, WSW.; shifts S.–SSW.–WSW.–WNW.–NW.

American S. S. *Janelew:*

Gale began on the 9th; wind W. Lowest barometer 29.64 inches at 12:30 a. m. on the 9th, wind W., 7, in latitude 51° 30′ N., longitude 3° E. End on the 10th. Highest force of wind 8; steady from W.

From the 10th to the 16th moderate weather was the rule over the entire ocean, with comparatively high pressure and slight gradients.

On the 17th and 18th there was a disturbance over a limited area in the middle western section of the steamer lanes, as shown by following storm logs:

British S. S. *Valemore:*

Gale began on the 17th; wind SSE. Lowest barometer 29.60 inches at 4 p. m. on the 17th, wind SW., 8, in latitude 44° N., longitude 51° W. End on the 17th; wind NW. Highest force of wind 8, SW.; shifts SW.–NW.

American S. S. *Anacortes:*

Gale began on the 17th; wind NNW. Lowest barometer 29.88 inches at 6 a. m. on the 18th, wind NNW., 8, in latitude 41° 42′ N., longitude 45° 30′ W. End on the 18th; wind NNW. Highest force of wind 8; shifts W.–WNW.

On the 20th there was a fairly well-developed LOW central near Hatteras that moved slowly northeastward, as by the 21st it was in the vicinity of Nantucket. Storm logs:

British S. S. *Parima:*

Gale began on the 20th; wind SW. Lowest barometer 29.91 inches at 6 p. m. on the 20th, wind SW., 8, in latitude 36° 33′ N., longitude 72° W. End on the 20th. Highest force of wind 8; shifts SW.–W.–WNW.

American S. S. *America:*

Gale began on the 21st; wind SW. Lowest barometer 29.80 inches at 3 a. m. on the 21st, in latitude 40° 50′ N., longitude 66° 35′ W. End on the 21st; wind NW. Highest force of wind 9; shifts SW.–NW.

From the 22d to the 24th another period of atmospheric inactivity ensued, with light to moderate winds over the entire ocean.

On the 25th a LOW of slight intensity and extent developed near latitude 55° N., longitude 30 W.; this moved but little during the next 24 hours, the wind increasing slightly in velocity. Storm logs follow:

British S. S. *Siamese Prince:*

Gale began on the 25th; wind SSW. Lowest barometer 29.35 inches at 6 p. m. on the 25th, wind SSW., 7, in latitude 55° 18′ N., longitude 22° W. End on the 26th; wind W. Highest force of wind 9, W.; shifts W. by N.–W.

British S. S. *Kenbane Head:*

Gale began on the 25th; wind WNW. Lowest barometer 28.84 inches at 5 p. m. on the 25th, wind W., 8, in latitude 56° 15′ N., longitude 30° 30′ W. End on the 27th; wind SW. Highest force of wind 10, W.; shifts WNW.–W.

On the 26th the American S. S. *Tivives* encountered northeasterly winds of gale force near the coast of Colombia, as shown by the following report:

Left Santa Marta, Colombia, at 10 p. m. on the 26th. Very heavy sea and wind of gale force. P. M. of the 26th wind and sea moderating. Position, Greenwich mean noon of the 26th, latitude 10° 46′ N., longitude 76° W. Barometer 29.88 inches. Wind ENE., 7.

On the 30th and 31st there was a LOW in the vicinity of Nova Scotia and Newfoundland, with light to moderate winds in the southerly quadrants, no reports having been received up to date from vessels north of the 50th parallel and west of the 50th meridian.

NORTH PACIFIC OCEAN.

By F. G. TINGLEY.

Five typhoons occurred in the Far East in July—one from the 3d to the 9th, another from the 9th to the 13th, a third from the 23d to the 25th, a fourth from the 26th to 29th, a fifth from the 25th to 31st. Inasmuch as the last one of these storms continued into August, causing the destruction of Swatow on the 2d, its history more properly belongs to that month. Ordinarily some three or four typhoons occur in July.

The first of the typhoons appeared to the eastward of northern Luzon, near latitude 18° N., longitude, 126° E., on July 3. It moved almost due northward, the center passing near Okinawa Island on the 5th and traversing the Eastern Sea on the 6th and morning of the 7th. During the afternoon of the 7th it traveled along the eastern coast of Chosen and thence, on the 8th and 9th, into northern Manchuria. On the 7th this typhoon caused a heavy rainstorm in western Japan.

The second typhoon was a small one which apparently formed to the westward of the Ladrones on the 18th. It moved in a westerly direction and passed over the Philippines on the 19th. Thus far little is known of its history.

Details of the other typhoons of the month will appear in the August REVIEW.

Conditions over the eastern part of the Pacific were characterized by high pressure over the Aleutian area and more than the usual amount of fog along the northern steamer routes. In the region of the Aleutian Islands the highest pressure of the year ordinarily occurs in July. For the years 1912–1920 the average of the p. m. barometer readings at Dutch Harbor is 30.02 inches, as compared with 29.54 inches in December, the month of lowest pressure, and a yearly average of 29.76. The average for the present July was 30.15 inches. The highest reading, 30.56, occurred on the 11th and the lowest, 29.66, on the 7th.

At Midway Island, on the contrary, pressure was below normal by some 0.06 inch, the average of the p. m. barometer readings being 30.04. The highest reading recorded was 30.16 inches on the 22d, the lowest 29.86 on the 17th. At Honolulu pressure was above normal by somewhat more than 0.01 inch. The highest reading was 30.11 on the 26th, the lowest 29.92 on the 13th.

Aside from the influence exerted by the typhoons in waters of the Far East the month was characteristically quiet. Only on a few occasions did the wind reach the force of even a moderate gale. Of these perhaps the most interesting, on account of the region in which encountered, was the gale experienced on July 31 by the American S. S. *Pacific*, Capt. William Mepham, during a voyage from Honolulu to Panama. C. A. Martell, chief officer and observer, has submitted the following report:

About 4:30 p. m. (L. M. T.) of the 31st, when in latitude 15° 05′ N., longitude 119° 01′ W., the eastern horizon began packing up with A. St. and Nb. clouds, wind ENE., force 4, barometer 29.81 (corrected). At 5 p. m. clouds increased to 6 with "scud" flying violently from E., wind increasing to 5–6, shifting to E. by N., barometer dropping. At 5:30 sky overcast with A. St. and Nb., wind shifting from E. by N. to E., to E. by S., to ESE. in a period of 10 minutes, force 7, violent and heavy rain. Barometer now reading 29.74 (lowest point), very rough, confused sea rising. At 6 p. m. wind dropped to force 2 and shifted to SE., clouds the same. At 6:30 clouds clearing, barometer rising to 29.86, wind SE. At 6:45 clouds 10 Nb., heavy rain, barometer 29.84, wind SE., 2. At 7:15 barometer 29.93, passing rains, wind SE., 3, clouds Nb. 10.

The weekly weather reports of the Imperial Marine Observatory, Kobe, show that anticyclonic conditions prevailed over the ocean area immediately to the eastward of Japan until the 19th, the date of the latest report received. From the 1st to the 19th, with the exception of the typhoon of the first week, but three cyclones affecting the weather of Japan were charted, all continental in type. The first of these appeared in Siberia on the 3d, the second in Mongolia on the 12th, the third in northern China on the 17th. All three moved northeastwardly in the direction of Kamchatka and their influence was only slightly felt over the western portion of the steamer routes.

Several vessels on the northern steamer routes reported an unusual amount of fog. The British S. S. *Empress of Asia* had continuous thick fog for 34 hours on the 25th and 26th. G. M. N. positions on those days, respectively, 46° 39′ N., 169° 03′ E. and 48° 47′ N., 179° 56′ E.

The American S. S. *Alloway* reports as follows:

Dense fog, continuous from 9 p. m. July 2 to 3:14 a. m. July 4.
July 5 and 6, passing fog banks, lasting 20 minutes each.
July 7 and 11, continuous fog. Part of time dense, heavy fog; small portion of time passing banks.

G. M. N. positions of the *Alloway* were as follows: 2d, 41° 27′ N., 151° 41′ E.; 4th, 45° 39′ N., 161° 40′ E.; 6th, 48° 04′ N., 169° 28′ E.; 11th, 48° 59′ N., 164° 38′ W.

The British S. S. *Waitemata* reports that from noon of the 2d to 9:30 a. m. of the 10th fog prevailed nearly all the time. When it lifted at times visibility was very poor and mist was always present. G. M. N. positions: 2d, 43° 10′ N., 157° 49′ E.; 10th, 50° 22′ N., 157° 53′ W.

SOUTH PACIFIC OCEAN.

The British S. S. *Waiduna*, Capt. A. T. Norton, Observer H. A. Brockett, Wellington for Tahiti and San Francisco, experienced heavy weather on July 6 to 8, the wind reaching the force of a strong gale, accompanied by high seas. The lowest barometer, 29.64 (corrected), occurred at 4 a. m. of the 6th, in 35° S., 174° W., shifts E. to ESE.